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early date, although the data with respect to many important sites will necessarily be imperfect.

Very truly yours,

W. H. HOLMES,
MR. EDGAR L. HEWETT,
U. S. National Museum.

Chief.

Identical orders were sent at the same time to superintendents of Indian schools, agents and additional farmers throughout New Mexico, Arizona and Colorado. These orders cover about one fourth of all the southwestern ruins. It will be seen that these various sets of orders from the two departments embrace practically all of the ruins that are not under private ownership.

It definitely mobilizes, so to speak, a force of forest supervisors, rangers, special agents, Indian school superintendents and teachers, Indian agents, farmers and police, and even enlists the Indians themselves, a particularly sagacious step, in the protection of these ruins for the avowed purposes of preserving them for scientific investigation. It establishes the broad and liberal policy that any competent scientist, who desires to place the material secured in a reputable public museum, will be authorized by the department of the interior to examine ruins, but that no person will be permitted to enter and excavate them for the purpose of acquiring specimens for traffic or private gain, and that willful destruction of valuable historic and prehistoric landmarks must cease.

Most archeologists will agree with Governor Richards that this subject calls for some judicious legislation, but they will be especially gratified to know that, pending such enactment, an efficient and economical policy has been developed in the department of the interior which is being made operative as promptly as circumstances will permit. The main thing, a system of governmental protection of archeological remains, is manifestly an accomplished fact, as much so, and after the same manner, as is the protection of timber on public lands. It will be effective just so far as the commissioners of the general land office and of Indian affairs are furnished with means adequate to carry the system into effect. It would now seem that all concerned

can best serve the interests of science and of the public by upholding this wise policy. I would further suggest that all workers in the southwestern field should make it their duty to keep the department of the interior informed of violations of the above orders which come to their notice and that they should henceforth refuse to purchase for museums any specimens or collections that are not secured by parties duly authorized to collect the same by the secretary of the interior. A specimen not secured by legitimate authority and not accompanied by authentic record should have no place in a reputable museum.

The bill proposed by Commissioner Richards as a substitute for all the pending bills on the subject is embodied in his annual report for 1904 to the secretary of the interior which can doubtless be had by addressing him. I regard it as a sound measure which provides in a simple and direct way for the end to be accomplished, and which should precede any further special enactments.

EDGAR L. HEWETT.
LAS VEGAS, NEW MEXICO.

NOTES ON THE HISTORY OF SCIENTIFIC NOMENCLATURE.

THEOPHRASTUS REDIVIVUS.

ALL who delight in contemplating the extraordinary attainments of the Hellenic mind, whether expressed in art, literature or science, will rejoice at the appearance of Dr. Hugo Bretz's learned treatise on 'Botanical Knowledge resulting from the Alexandrian Conquest.'* This work of over 400 pages unquestionably ranks as the most critical and thoroughgoing discussion extant of the earliest botanical contributions that have come down to us from the olden time.

Naturally, the chief sources of material are those furnished by the writings of Theophrastus, disciple of Plato and Aristotle, and successor of the latter. Additional information of great value, especially as regards the extinct mangrove colonies along the Red Sea and Persian Gulf, to say nothing of general natural history, is contained in those oldest

* 'Botanische Forschungen des Alexanderzuges,' Leipzig, 1903.

of nautical journals, the logs of Nearchus and Androsthenes—Alexander's admirals—portions of which have fortunately survived for 2,200 years.* All these ancient documents are remarkable for their absolute fidelity to nature, the accuracy of Theophrastus's descriptions leaving little room for doubt that this keen observer personally accompanied the famous expedition.

Notwithstanding the earlier commentaries of Scaliger, certain difficulties peculiar to Aristotelian writers have rendered Theophrastus largely unintelligible to modern students. These hindrances are partly of formal nature, partly due to the exceedingly colloquial style of description employed, and in still larger measure to the absence of illustrations and of a definite nomenclature. All the more gratifying is it, therefore, to find that most of the obscurities vanish before the penetrating analysis of philology, the original meaning becoming once more revealed like a restored palimpsest. The practical value of these researches consists in their disclosure of a means for identifying many of the species mentioned by Alexandrian botanists, which in turn provides us with important data in regard to plant distribution at a period more than two thousand years distant, together with changes in climatal and geographical conditions. Mention might also be made in this connection of Lenz's 'Botanik der alten Griechen und Römer' (Gotha, 1859), and of his 'Zoologie' (1856). A more popular recent work is Watkins's 'Gleanings from the Natural History of the Ancients' (London, 1885).

WHAT IS A BRICK?

A BRICK is a rock. So a geologist has told us. Construction bricks, gold bricks, coal

* Theophrastus availed himself of both of these itineraries in the preparation of his treatise, as did also Strabo, Pliny and later writers. The narrative of Nearchus owes its preservation chiefly to Arrian, historian of the Macedonian invasion. Several English translations of the text are extant, and the points at which the fleet touched have been determined by Tomaschek and others. Copious notes on these and other ancient itineraries are given in McCrindle's 'Ancient India as described in Classical Literature' (1901).

briquettes—possibly even ice cream bricks—all are rocks. Moreover, they belong to particular kinds of rocks. Careful investigations into the nature of 'bricks, plaster, concrete, cement and all other rocks which receive their characteristic features through man's agency' have enabled a writer in the *American Geologist* (33, p. 228, 1904) to dispel all doubt in the matter.

Among the clarifying conclusions reached by this purist we note that burnt bricks, as material, must be considered as *aethobalitic bioclastics*. Sun-dried bricks, plaster and cement fall harmoniously into the system as 'biolutytes'; concretes are 'biorudytes,' their texture being 'rudaceous'; and impure clay rocks, from which brick material is derived, are 'siliceous or calcareous anemoargillutytes.' As for the pure anemoclastics (*sic*), these are separated into 'anemosilicarenites' and 'anemocalcarenites' as easily as falling off a log. The whole scheme is adorably simple, and simply adorable—to all such as prefer new and pedantic terms to common English expressions.

With becoming modesty the author suggests that 'the compound terms here given may be found useful in descriptive writing, especially as they are almost self-explanatory.' That the word *almost* may cover a multitude of sins is apparent from the fact that over a score of pages are consumed in explaining these mellifluous compounds. It is a satisfaction to find ourselves at one with the author in his concluding observation, to the effect that 'stratigraphers will scarcely need terms more precise than those here given.'

LITHOPHAGI.

HOMER and Herodotus have immortalized the Lotophagi, Alexander's historians the Ichthyophagi; and it has been reserved for Dr. S. W. Williston (SCIENCE, No. 513) to leave 'not a shadow of doubt' that plesiosaurs belonged to the Lithophagi. Evidence of collectors seems to be convincing that pebbles were actually swallowed by plesiosaurs in large quantities; but we are inclined to think that even Swift's 'bold man that first eat an oyster'

would have flinched before the 'gizzard' proposition.

Had Dr. Williston stated his syllogism as follows: 'All birds have feathers; the sage hen is a bird; therefore the sage hen has feathers'—he would have substituted the exact converse of our argument with respect to reptiles. Negative evidence is, of course, unconvincing, and there are paleontologists who may say: 'It is conceivable that some reptiles had feathers, though none are now known to possess them; therefore, it is possible that plesiosaurs (and other reptiles) had feathers.' To them we answer, it is also *possible* that plesiosaurs rejoiced in having a vermiform appendix; and the author* who recently described a specimen of *Hybodus* with a school of Belemnites inside, might have gone a step further than he did, postulating appendicitis as cause of death. As it was, we shall hardly contest his verdict in pronouncing it acute indigestion: 'bei der Verdauung traten dann Beschwerden ein.'

INTRODUCTION OF THE TERMS GEOLOGY AND PALEONTOLOGY IN NATURAL SCIENCE.

THE opinions of so eminent an authority as Dr. S. F. Emmons are entitled to universal esteem. When this learned writer tells us in SCIENCE (No. 512) that he 'should have considered it a useless waste of time to have searched all ancient literature to find out by whom it [the term geology] was first used,' most of us will cheerfully agree with him.

When, however, he reiterates the statement that 'de Sauvage was the first *geologist* to use this term' in its modern acceptation, only a moment's time is required to satisfy one's self of its historical inaccuracy. In the work of von Zittel to which Dr. Emmons refers (page 106 of the German edition), the credit for having introduced the term geology in a scientific sense is awarded to Deluc (1778). Deluc and de Sauvage were contemporary scientists, but the employment of the term geology by the former antedates that of the latter.

If one can spare a moment further, still

* Campbell Brown, 'Ueber das genus *Hybodus*,' etc., Palaeontogr., 46, p. 163 (1900).

without 'searching all ancient literature,' one may consult a standard authority like Murray's 'New English Dictionary' (Oxford). Under 'geology' the earlier use of the term by de Bury in 1344, and by F. Sessa in 1687, is referred to, after which it is remarked: 'So far as at present known, the use of the word as a name for a distinct branch of physical science occurs first in English,' references being given to E. Warren (1690), B. Martin (1735) and Bailey (1736). Von Zittel is also authority for the statement that the term paleontology was introduced almost simultaneously by de Blainville and Fischer von Waldheim during the third decade of the nineteenth century.

COSMOGRAPHICAL KNOWLEDGE OF THE ANCIENTS.

THE appearance of a revised edition of Hugo Berger's 'History of Comparative Geography amongst the Greeks' furnishes occasion for a brief notice of this exceedingly valuable repository of information.* Of wider scope, yet more compact than Bunbury's and other standard histories of ancient geography, the plan of the present work aims to provide an epitome of all the essential facts, together with a profusion of references to original sources, and to commentaries upon the same.

Although dealing primarily with descriptive geography in the pre-Christian era, the subject necessarily includes cosmical, geological and physiographic aspects of earth-science in general; and from this it follows that the attempt to trace interrelations between authors belonging to different periods and schools, with the aid of our present materials, is an intricate task. Herein probably lies the explanation of the numerous repetitions and cross-references which occur throughout the work, a feature which is no less conspicuous in Humboldt's 'Cosmos' and similar treatises.

The critical acumen of the author may be best appreciated through comparison of judgments passed by him upon this or that heroic figure in science, compiler, or commentator, with the judgments already passed upon them by equally erudite explorers of the same field. Divergence of opinion is to be noted in many

* 'Geschichte der wissenschaftlichen Erdkunde der Griechen' (Leipzig, 1903), pp. 662.

cases, sometimes flat contradiction; but it is safe to say that wherever Dr. Berger gives his individual estimate of ancient wayfarers along the road to knowledge, he has formed his opinion from profound and conscientious study.

The subject-matter of the work is arranged chronologically according to authors, and as the latter are generally occupied with a surprising variety of topics, the historical continuity of certain lines of investigation becomes obscured by this method of presentation. A remedy for the defect would have been to summarize in special chapters the progress made in the study of particular phenomena, such as the cosmical relations and movements of the earth, volcanic activity, tides, petrifications, and the like. Tozer's 'History of Ancient Geography' is arranged partially after this fashion, and is excellently adapted, by the way, as an introduction to the work above considered.

C. R. EASTMAN.

HARVARD UNIVERSITY.

BOTANICAL NOTES.

THE STUDY OF PLANT DISEASES.

AN interesting pamphlet comes from the antipodes under the title of 'Letters on the Diseases of Plants,' by N. A. Cobb, of the Department of Agriculture of New South Wales. In somewhat over a hundred and thirty pages the author has brought together the substance of a great number of letters written in reply to correspondents. He has recast the matter so that the epistolary form has been obliterated, and he has added a large number of cuts in the text, and a dozen full-page plates (some colored). Here in compact form is to be found a great deal of information in regard to many plants, stated in such non-technical English as to render it easily comprehensible by any intelligent person. There is first a long discussion of ripe rot, the fungus of which (*Glaeosporium fructigenum*) attacks the fruits of many different plants. The results of many interesting experiments are given in detail. Banana seab (*Phoma* sp.), stigmonose (due to insect punctures), mouldy core of the apple (*Penicillium*, *Mucor* and others), quince rots, peach

curl (*Exoascus deformans*), lemon and orange diseases, diseases of the passion vine, potato diseases, root-rots and timber rots, are among the topics more or less fully treated in this valuable publication.

THE STUDY OF WOODS.

ANOTHER book on the structure and uses of the woods of commerce has made its appearance in England under the title of 'The Timbers of Commerce, and their Identification.' It is from the hand of Herbert Stone, F.L.S., and is issued by Rider & Son, of London. It constitutes a neat volume of about 350 pages, and is beautifully illustrated with 186 photographs showing the grain of cross and longitudinal sections of wood. There is a general introductory chapter on the structure of wood, and following this are the descriptions of 247 different species. These descriptions are very concise, a short paragraph (or line) being given to each of the following topics: Natural order, synonyms, sources of supply, alternative names, physical characters, grain, bark, uses, etc., authorities, color, pores, rays, rings, soft tissue, pith, radial section and tangential section. There is a good deal of similarity between this book and the one prepared by Professor Snow last year under the title of 'The Principal Species of Wood,' and noticed in these columns (SCIENCE, July 3, 1903), at the time of its appearance. The American book takes up only about half as many species as the English book, and its descriptions are shorter, covering fewer points, yet the much better arrangement and the careful selection of species in the former make it by far the more useful for the American student or artisan.

COMPARISON OF EASTERN AND WESTERN FLORAS.

THE recent publication of two local floras permits a comparison between an eastern rocky area with one consisting of typical prairie conditions. George G. Kennedy's 'Flora of Willoughby, Vermont,' originally published in *Rhodora* for June, 1904, takes up the plants of Willoughby Mountain, Willoughby Lake and the vicinity, in northern Vermont. The elevation of the lake above the sea is 1,060 feet,